

The Effect of Procedural Injustice on Cooperation with 911 Operators and
Criminal Justice Authorities: A Factorial Vignette-Based Study

by

Michaela R. Flippin

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Graduate Supervisory Committee:

Michael D. Reisig, Chair
Rick Trinkner
Jacob T.N. Young

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ABSTRACT

Prior research looking at procedural justice has largely focused on legal authorities, such as the police. There is a gap in the research regarding the influence of procedurally-just treatment of other criminal justice professionals, including 911 operators. These individuals are often the first contact citizens have when initiating police services, and it is likely that 911 operators set the stage for how police encounters with the public unfold. Using a factorial vignette design, this study tests the causal links between procedural injustice and several outcome measures, including cooperation, satisfaction, callback likelihood, and willingness to testify in court. Data from a university-based sample (n=488) were used to estimate a series of ordinal regression models. The results show that participants who received the injustice stimuli were generally less likely to report they would call 911 in the future, cooperate with the 911 operator if asked additional questions, cooperate with the police once they arrived on the scene, and had lower levels of satisfaction with the how the operator handled the call. These results were significant across two different scenarios (i.e., breaking and entering and traffic accident). Seriousness of the encounter also varied across these outcomes, but the magnitude of the effect was more modest. The results demonstrate the effect non-sworn personnel, such as 911 operators, can have on the outcome of police-citizen encounters.

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Introduction

Much of the procedural justice research has focused on its effects in a police context, as well as the subsequent trust, legitimacy, and cooperation garnered or lost (Bradford, 2014; Hough, Jackson, Bradford, Myhill, & Quinton, 2010; Jackson et al., 2012; Murphy, 2005). When the public feels the police act in a procedurally-just way (e.g., fair and evenhanded treatment and decision-making), levels of police legitimacy and citizen cooperation improve (Murphy, Hinds, & Fleming, 2008; Reisig, Bratton, & Gertz, 2007). However, when members of the public question the legitimacy of the police because of unjust treatment, general compliance is much harder to achieve (Sunshine & Tyler, 2003).

Many studies have investigated the link between procedural justice and judgments of police behavior. However, researchers have yet to consider the impact of procedural justice judgments involving other criminal justice professionals involved in police-citizen encounters, such as 911 operators. Because 911 operators are often the first contact individuals calling the police have with the criminal justice system, it is important to understand what impact (if any) that 911 operators have on the willingness of callers to help the police after they arrive on the scene. One could argue that 911 operators who handle calls in a manner consistent with procedural justice principles help set the stage for police officers to successfully resolve encounters after they arrive on the scene. But by choosing the wrong tone, poor choice of words, or pursuing an insensitive line of questioning, a 911 operator may reduce the likelihood that the police will successfully and efficiently resolve encounters.

This study tests the effects of procedural injustice on several outcome measures (e.g., cooperation with police, encounter satisfaction, and testify in court) using a factorial vignette survey data from a university-based sample. Two different vignettes are used, each of which describes a 911 call (i.e., breaking and entering or traffic accident). Both scenarios included two experimental conditions: (1) 911 operator behavior consistent with procedural injustice, and (2) varying levels of event seriousness (e.g., property stolen and physical injury). These data were used to estimate a series of ordinal regression models. The results from this study will shed light on the effect non-sworn personnel can have on the outcome of police-citizen encounters.

Review of the Literature

Conceptualizing Procedural Justice

Prior procedural justice research has grappled with contending conceptual definitions. According to Thibaut and Walker's (1975) control model of procedural justice, there is a relationship between people's control over the decision-making process and their ability to influence the outcome of the interaction. Leventhal (1980) argued that fair and just procedures are characterized by the following: consistency, bias suppression, accuracy, correctability, representativeness, and ethicality. Influenced by the work of these two early scholars, Tyler's conceptualization of procedural justice emerged. In his conceptual system, commonly known as the process-based model, procedural justice consists of four elements: the opportunity for one to give his/her side of the story (voice), the perceived neutrality of the police officer (neutrality), how one is treated by the police (e.g., respect and honesty), and the actions of legal officials reflect the greater community

well-being (trustworthy motives) (Fischer, 2014; Jonathan-Zamir, Mastrofski, & Moyal, 2015; Tyler, 2006).

It has been empirically demonstrated that procedural justice is a crucial step in shaping positive public perceptions of the police, including citizens' willingness to cooperate with police officers (Hinds & Murphy, 2007; Lempert, 1980; Murphy, 2005; Tyler, 2001, 2003, 2004; Tyler & Lind, 1992; Tyler & Smith, 1998; Wissler, 1995). Tyler's approach to conceptualizing procedural justice has also taken on a two-pronged approach. Specifically, two elements—quality of decision making and quality of interpersonal treatment—combined capture procedurally just actions. Quality of decision making refers to the neutrality of legal authorities in making decisions, thus being perceived as fair and impartial. Quality of interpersonal treatment refers to the level of respect and consideration legal authorities display when interacting with citizen. When these two procedural elements come together, the judgements that follow are perceived to be procedurally-just and underscored by trustworthy motives (Blader & Tyler, 2003).

Prior Process-Based Model Research

Prior process-based model research has found support for the link between procedural justice and various outcomes, including police legitimacy, citizen cooperation, compliance with the law, and both long-term and short-term decision acceptance (Tyler, 2003, 2006; Tyler & Huo, 2002). That is to say, the more police use procedurally-just treatment when interacting with the public, the more legitimacy, citizen cooperation with police directives, and compliance with the law will be garnered (Murphy et al., 2008; Sunshine & Tyler, 2003; Reisig et al., 2007). However, much of the process-based model

policing research has been cross-sectional in nature. Although this design has been instrumental in the development of the model, there are some limitations. Cross-sectional studies present a challenge in distinguishing correlational from causal effects (Mann, 2003). As a result, it is difficult to say with any degree of certainty that procedural justice is the cause of any outcome of interest (e.g., citizen cooperation with legal authorities). For this reason, it is difficult to rule out reverse causation—that cooperating with the police actually influences procedural justice judgements. Additionally, these studies primarily focus on policing using a popular legitimacy framework and interview data with people who may or may not have had recent contact with the police (Nagin & Telep, 2017).

A growing number of studies have looked at procedural justice using a vignette design. For example, Lowrey, Maguire, and Bennet (2016) used videos that depicted a police officer behaving in a way that was neither procedurally-just nor unjust (control condition), behaving in a way that conveyed respect, fairness, and citizen cooperation (procedural justice condition), or behaved in a way that was consistent with extreme politeness (overaccommodation condition). Similarly, Maguire, Lowrey, and Johnson (2017) used similar video vignettes that depicted a police officer behaving in a way that was neither procedurally-just nor unjust (control condition), behaving in a way that conveyed rudeness (negative condition), or behaving in a way that was consistent with key elements (i.e., respect, fairness, voice, trustworthy motives) of procedural justice (positive condition). Both studies showed that using elements of procedural justice when interacting with citizens led to participants reporting greater trust in the police officer on

the scene, greater sense of obligation to obey the officer's orders, and a greater willingness to cooperate with the police.

Reisig, Mays, and Telep (2017) used a vignette design to test the effect of procedural injustice in two types of police encounters—noise complaint and traffic stop. The two experimental conditions were whether the individual was treated unfairly by the police officer and whether the participant received a citation. The results showed that, in both scenarios, participants who were administered the procedural injustice stimulus were less likely to be satisfied with the encounter. Barkworth and Murphy (2015) administered vignettes and asked participants to imagine they were stopped by the police for speeding. These vignettes manipulated procedurally-just or unjust treatment by the police officer on the scene. For example, in the procedurally-just encounter, the police officer was kind, explained why they pulled over the driver, and allowed the driver an opportunity to explain their reason for speeding. Conversely, in the procedurally-unjust encounter, the officer was rude, dismissive, did not explain their reasoning in pulling over the driver, and did not allow the driver to explain why they were speeding. The results from this study showed that, for participants who were treated in a manner consistent with procedural justice, their self-reported likelihood to be compliant was significantly higher than those who were administered the procedurally-unjust scenario.

Trinkner and Cohn (2014) used a vignette methodology to study legal socialization through the lens of procedural justice by administering scenarios involving an individual asking to break a rule. Participants read one of three scenarios in which the authority figure was varied (i.e., parent, teacher, or police) and the participant's voice and

authority figure's rule impartiality were manipulated. In each scenario, the authority figure either listened attentively or cut off the individual (voice) and either impartially refused to break this rule with all who ask or allowed certain others to break the rule, thus showing partiality. Regarding the scenario reflecting police as an authority figure, the results showed a significant direct effect between procedural justice and rule-violating behavior among the younger cohort in the study. With this being said, the use of procedural injustice can lead to lower levels of cooperation from citizens (Tyler, 2003; Tyler & Huo, 2002).

Prior research regarding the process-based model has also focused on encounter-based observational research. For example, McCluskey, Mastroski, and Parks (1999) observed police-citizen encounters in Indiana and Florida and found that officer treatment, either procedurally-just or unjust, was key in gaining citizen compliance. Specifically, this study found that officers showing respect to citizens led to greater general compliance. Police signs of disrespect, however, was inversely associated with compliant behavior. Mastroski, Snipes, and Supina (1996) assessed citizen-police encounters in Virginia, they too found that disrespectful treatment by the police, or procedurally-unjust treatment, resulted in lower levels of citizen compliance. Finally, Dai, Frank, and Sun (2011) observed police-citizen encounters in Cincinnati, OH and found procedurally-just behaviors, specifically police demeanor and voice, were key in gaining citizen cooperation. Similar to vignette-based research, the results from systematic observational research demonstrates that procedurally-just treatment on the

part of the police promotes responses that are beneficial to resolving encounters with the public without incident.

911 Operators and Procedural Justice

Each year, approximately 240 million 911 calls are made in the United States (Filman, 2015). In England and Wales, 80 million calls are made to the 911 equivalent and nearly half of the British population will themselves initiate contact with the police at least once a year (Stafford, 2017). For many people, the first interaction they will have with the criminal justice system occurs when they call 911 (Leeney & Mueller-Johnson, 2012). The sheer magnitude of 911 operator-citizen interaction and the potential of its influence necessitates a close examination of how best to operate these systems to ensure high quality service. It is quite possible that a simple 911 call can influence how citizen-police encounters unfold.

Prior research on 911 operators has focused primarily on the call structure and information transfer that is common in these interactions (Stafford, 2016, 2017; Tracy & Tracy, 1998). 911 operators are expected to listen to callers' descriptions of the incident, determine the seriousness of calls, listen to other operators who may be fielding calls for the same incident, document caller information and incident explanation on the computer aided dispatch system, keep callers calm, and listen to their supervisors who may have instructions for the handling calls (Terrell, McNeese, & Jefferson, 2004). Operators must also ask questions to better understand the incident (Tracy, 2002). However, when individuals are making 911 calls, they may be in a state of panic or under great duress. It is not uncommon for callers to resist answering what they deem unnecessary questions

(Tracy, 2002; Whalen, Zimmerman, & Whalen, 1988). Given the need for operators to question callers who are often experiencing high emotionality, the concepts of face and face attack or threat are applicable to 911 operator-caller interactions.

“Face” refers to the positive public persona individuals display in their day-to-day interactions with others (Brown & Levinson, 1987; Goffman, 1955, 1967). In these interactions, when the face of either participant falters, a “face threat” has occurred. Face threats can arise due to innocent communicatory mistakes, missteps in line of questioning seen as inappropriate or offensive, and/or a purposeful face threat (Tracy & Tracy, 1998). Face threats that are born out of deliberate maliciousness are known as “face attacks” (Goffman, 1955). In the context of 911 calls, face attacks can be perceived to have occurred when callers are interrupted, question-asking, mismatched expectations of operator discourse, and questioning the caller’s understanding of the event (Tracy, 2002). Given the urgent nature of 911 calls, a face attack prolonging the call and limiting the ability to report details of an incident can potentially be the difference between life and death (Whalen, Zimmerman, & Whalen, 1988). For this reason, it is important to study how procedural justice can serve to ameliorate the issues caused by the occurrence of face attacks and threats during 911 operator-caller interactions. Furthermore, this line of research may serve as a step in creating more efficient call systems.

In the context of a 911 call, face attacks represent instances of procedural injustice. For example, in a 911 call cited by Tracy and Tracy (1998), a caller contacted 911 after waiting an hour and a half since they last called to report an assault. When the caller complained about the wait time and being frustrated over seeing other patrol cars

pass by, the 911 operator responded by saying, “you’re not the only call we’ve got, so either be patient or call back later, or call back tomorrow or whatever” (p. 248). When the caller was not satisfied with this answer, the 911 operator abruptly hung up on the caller after saying, “go back and wait or go home, I don’t have time to argue with you any further I’ve got other calls pending” (p. 249). This call is a clear example of a face attack. Put differently, the behaviors exhibited by the 911 operator runs counter to the principles of procedural justice. One can imagine this treatment was seen by the caller as disrespectful, disallowing voice, not inspiring trust, and unfair. As can be seen from this example, procedural injustice in the form of face attacks is not difficult to imagine occurring over the phone between callers and 911 operators.

Seriousness of Crime

Researchers have identified several factors that victims consider when deciding whether to call the police. Existing research focuses on two thought processes. The first is a rational cost-benefit analysis (Goudriaan, Lynch, & Nieuwbeerta, 2004; Kang & Lynch, 2014). Here, a crime or incident that is greater in loss or injury to the victim, and in which a victim can be certain that the benefits of reporting outweigh the possible negative consequences, is more likely to be reported. The second process—a reliance on norms surrounding reporting crime—can influence victims’ decisions to call the police if they feel it is their obligation to report crime, regardless of the seriousness of the event (Schnebly, 2008). Ruback, Ménard, Outlaw, and Shaffer (1999) found support for the reliance on norms approach, in that participants were more likely to report crime when the victims were females, elderly, and those who had not partaken in drinking.

Seriousness of the crime is one of the most important factors victims consider when making a decision about reporting crime. Skogan (1976) outlined four dimensions of seriousness: the value of the stolen or damaged property, the extent of personal injury, the use of weapons, and the intrusiveness of the crime. Physical injury and loss of property are considered among the most serious crimes committed and thus most likely to be reported by victims (Goudriaan et al., 2004). Kang and Lynch (2014) found that a victim of assault was 1.3 times more likely to call the police than a victim of a threat. This shows that seriousness does in fact matter. Regarding property crimes, it is more common for victims to report insured property as stolen in the interest of redress. Additionally, personal victimization is seen as more serious than witnessed victimization (Shoemaker & Bryant, 1987). As Skogan (1976) notes, “the greater loss, harm, threat, or insecurity generated by an incident, the more likely it is to be reported to the police” (p. 544).

Current Focus

Much of the procedural justice research has been conducted in the policing context. Yet to be considered is the impact of procedurally-unjust behavior by non-sworn criminal justice professionals and the influence such behavior has. This study aims to fill this void in the literature by looking at 911 operator-citizen encounters. By using a factorial vignette design, several outcomes of procedurally-unjust behavior across two different scenarios can be measured. When it comes to the ways 911 operators handle calls, procedurally-unjust behavior can take many forms. In this study, these behaviors include disrespect, interruptions (i.e., not allowing citizen a voice), yelling, and a lack of empathy regarding the caller’s concerns. These behaviors are all consistent with

Goffman's (1955) concepts of "face attack." The goal of this research is to better understand procedural justice in more diverse contexts, and to demonstrate the impact 911 operators can have on how police encounters with the public unfold.

Methods

Data

This study uses data from self-administered surveys that were distributed to undergraduate criminology and criminal justice (CCJ) students at Arizona State University (ASU) who were 18 years or older. Surveys were administered during the fall 2017 semester. Students from 10 different CCJ courses on the Downtown (Phoenix), West (Glendale), and Tempe campuses were surveyed. These classes were introductory courses and open to all ASU students. Prior to administering the surveys, individuals were made aware that their participation was completely voluntary (participation rate = 97.6%) and that their answers were anonymous. Participants also had access to a member of the research team while taking the survey in case they had questions. On average, the survey took about 15 minutes to complete. A total of 509 surveys were collected. ASU's institutional review board approved this protocol prior to beginning data collection. Because there was very little missing data, listwise deletion was used. Using this approach reduced the sample size by approximately 1.4%.

Sample

The ASU undergraduate student population is quite diverse. After dropping cases for missing data and failed narrative checks (discussed below), the sample has 318 females (65.2%) and 162 males (33.2%). In terms of age, 51.2% of the sample were 18

years old ($n = 250$), 19.5% were 19 ($n = 95$), 13.9% were 20 ($n = 68$), and 13.7% were 21 or older ($n = 67$). With respect to race, 42.8% identified as White ($n = 209$), 5.5% African American ($n = 27$), 37.5% Latino ($n = 183$), 1.6% Native American ($n = 8$), 4.1% Asian ($n = 20$), and 6.6% identified as “other” minority ($n = 32$). When compared to the broader university student population, the sample has a greater proportion of females, younger individuals, and racial/ethnic minorities. Caution should be exercised when attempting to generalize the findings from this study to other populations.

Design

Vignette-based methodologies involve presenting individuals with hypothetical narratives and asking them to respond to these situations as they would in real life (Hughes, 1998). Though there are several variations of vignettes, this study employs a full factorial vignette (FFV). This allows researchers to look at all possible combinations of the vignette factors (Atzmüller & Steiner, 2010). Vignettes are advantageous in that they allow a researcher to present participants with a realistic, easily imaginable scenario while saving the costs of placing participants in these scenarios if that were a plausible venture (Hyman & Steiner, 1996). A common issue cited along this same line of thinking is that vignettes lack real world characteristics. Still, despite these concerns, studies have found that individual’s responses to vignettes and real-life situations are rather similar. Research suggests that one can account for these shortcomings by making the hypothetical situations or narratives both realistic and relevant (Hughes, 1998).

Each participant completed a survey including a single hypothetical scenario based on one of two contexts (e.g., breaking and entering or traffic accident; see

Appendix A).¹ Each vignette featured two experimental stimuli (e.g., procedural injustice and seriousness), making for a total of 8 possible hypothetical scenarios (i.e., 2 x 2 x 2). After carefully reading the scenario, each participant was asked to answer 11 follow-up questions. Two of these questions were used for quality control. Specifically, students were asked how clearly they could imagine the story and how realistic the story was. A large majority of participants (99.2%) said either “very clearly” or “somewhat clear.” When asked about how realistic each scenario was, most participants (92.6%) reported the scenarios were either “very realistic” or “somewhat realistic.” The remaining follow-up items were used to measure outcome variables, serve as manipulation checks to ensure that experimental conditions were understood by the participants, and narrative checks to confirm the participants read and understood the details of the story. Regarding the latter, a small number of participants ($n = 13$) failed to correctly answer one of the two narrative checks and were subsequently removed from the sample.²

A number of steps were taken to ensure that the survey was distributed in a manner that closely approximated randomization. First, the eight different versions of the survey were shuffled prior to distributing them to classes. Next, the surveys were not passed out in class in any specific pattern because classroom designs varied, as did the spatial distribution of students in each classroom. Overall, the dissemination of the

¹ The surveys distributed included two vignettes of similar length. One of the vignettes was for this study, the other was for a separate study. The survey included a front page outlining informed consent and researcher contact information. The following two pages included the surveys that were randomly assigned an order regarding which scenario came first. Additionally, the same number of questions followed each survey to gather outcome measures, manipulation checks, and narrative checks. The final page of the survey gathered demographic information from participants.

² Manipulation checks were conducted by asking participants to identify the reason they called 911 in the hypothetical scenario. For each scenario, participants either chose, “to report a robbery,” “to report a car hitting someone on a bike,” “a burglary,” or “to report a fight.”

different versions of the scenarios was relatively even. Finally, a series of balance tests were performed using one-way ANOVA models to determine whether randomization was achieved for each subsample. The variables examined in the balance assessment included the following: age, race, gender, living arrangement, prior victimization, and prior police contact. The results from the ANOVA models reveal no statistically significant differences between groups for all demographic variables tested (see Appendix B). Overall, the results suggest that the distribution strategy was sufficiently random.

Measures

Dependent Variables

There are five dependent variables in this study. The first variable, *callback likelihood*, is a single survey item that asked participants, “How likely would you be to call 911 for assistance if something like this happened to you in the future?” The second outcome measure, *cooperate with operator*, is one survey item that asked participants, “How likely would you be to answer any additional questions the 911 operator might have?” Both of these items were followed by 4-point, closed-ended response sets ranging from “very unlikely” (coded 1) to “very likely” (coded 4). The third dependent variable, *cooperate with police*, is a survey item that asked participants, “How willing would you be to let the police interview you once they arrive on the scene?” The fourth outcome measure, *testify in court*, is a single survey item that asked participants, “How willing would you be to testify in court if the person was brought to trial?” These two variables featured response sets that ranged from “not at all willing” (coded 1) to “very willing”

(coded 4). Finally, the fifth dependent variable, *encounter satisfaction*, consists of a survey item that asked participants, “How satisfied were you with the way the 911 operator handled your call?” The closed-ended response set for this item ranged from “very unsatisfied” (coded 1) to “very satisfied” (coded 4). Summary statistics for the dependent variables are provided in Table 1.

Table 1: Summary Statistics for Dependent Variables

	Mean	SD	Min	Max
Breaking & Entering (n = 236)				
Callback Likelihood	3.28	1.00	1.00	4.00
Cooperate with Operator	3.18	1.06	1.00	4.00
Cooperate with Police	3.59	0.68	1.00	4.00
Testify in Court	3.59	0.67	1.00	4.00
Encounter Satisfaction	2.47	1.26	1.00	4.00
Traffic Accident (n = 252)				
Callback Likelihood	3.52	0.79	1.00	4.00
Cooperate with Operator	3.42	0.90	1.00	4.00
Cooperate with Police	3.56	0.70	1.00	4.00
Testify in Court	3.25	0.84	1.00	4.00
Encounter Satisfaction	2.62	1.27	1.00	4.00

Independent Variables

There are two independent variables in this study, each of which represents an experimental condition that varied across the two hypothetical scenarios. The first condition features a 911 operator behaving in a manner that is not consistent with the

principles of procedural justice. For example, in the traffic accident scenario, a caller is contacting 911 after witnessing a car hit a bicyclist. After asking the caller to address the wellbeing of the bicyclist, the 911 operator responds in one of two ways. If the participant receives the procedurally-just encounter, the operator responds by saying, “Okay, I appreciate your detailed description. Thank you. Please wait for the police and paramedics to get there. I will stay on the line until they arrive.” However, if the participant received the procedurally-unjust encounter, the operator says, “Excuse me! Are you a medical doctor? If not, save the arm chair diagnosis. It’s not helpful!” By lashing out at the caller, interrupting their report, and not being reassuring or comforting, the 911 operator fails to uphold the tenants of respect, voice, and trustworthy motives. Further, in the breaking and entering scenario, a caller is contacting 911 after returning home to their apartment to find it has been broken into. In the procedurally-just encounter of the breaking and entering scenario, after the caller expresses concern over their safety with a possible burglar still in their apartment, the operator says, “Okay, for your safety, please wait for the police outside. I will stay on the line until they arrive.” Conversely, in the procedurally-unjust encounter of the breaking and entering scenario, the operator says, “Knock it off! Calm down! If you’re going to act like a baby then wait outside for the police.” Again, this type of behavior is inconsistent with procedural justice elements like respect, voice, and trustworthy motives. *Procedural injustice* was binary coded and reflects if a participant was the recipient of procedurally-unjust treatment (1 = yes, 0 = no).

The second independent variable, *seriousness*, reflects the second experimental manipulation. In the breaking and entering scenario, the caller either reports that “nothing appears to be missing” or “looks like the flat screen is gone, my bike is gone, and so is my laptop. I’m guessing probably more is missing.” The latter represents the more serious condition. In the traffic accident scenario, the caller either reports that the bicyclist “walked over and sat down on the sidewalk, so it doesn’t seem too serious” or “their leg is really bloody and mangled. They’re in serious pain...they seem a little disoriented so maybe they may have a concussion.” The latter is treated as the more serious condition. This measure was also binary coded (1 = yes, 0 = no) to reflect whether the participant received the experimental condition.

Analyses and Results

Manipulation Checks

To assure the procedural injustice stimuli were perceived as unfair by participants, ANOVA models were estimated (see Table 2). After reading the scenario and responding to items used as outcome measures, respondents were presented three questions asking them to rate the treatment they received from the 911 operator in their scenario. More specifically, participants were administered items that captured three important procedural justice principles: respect (i.e., “The 911 operator treated you with respect”), participation (i.e., “The 911 operator allowed you to fully explain the situation”), and trustworthy (i.e., “The 911 operator was reassuring and comforting”). Each manipulation check featured a Likert-type scale ranging from strongly disagree (coded 1) to strongly agree (coded 4). Table 2 shows the mean scores for each item. The results are clear.

Relative to the control condition, the mean scores for participants who received vignettes with the procedural injustice manipulations were much lower. These results confirm that the procedural injustice manipulations were perceived by participants as the designers of the vignettes intended.

Table 2: One-way ANOVA Models Testing Procedural Injustice Manipulations

		Respectful		Participation		Trustworthy	
		Mean	SD	Mean	SD	Mean	SD
<hr/>							
Breaking & Entering (n = 236)							
Procedural Injustice							
Yes		1.535	0.612	1.886	0.796	1.482	0.641
No		3.631	0.548	3.443	0.669	3.279	0.633
	<i>F</i>	769.24*		266.02*		468.40*	
Traffic Accident (n = 252)							
Procedural Injustice							
Yes		1.730	0.709	1.937	0.767	1.635	0.711
No		3.667	0.537	3.468	0.701	3.270	0.720
	<i>F</i>	597.65*		274.00*		328.82*	

* $p < 0.001$

Multivariate Regression Models

Multivariate tests were carried out using ordinal regression techniques. In all, eight regression models were estimated, four for each scenario. Each model contains two variables representing the two experimental conditions (i.e., procedural injustice and seriousness). Because of interest in the impact of procedural injustice on the outcomes relative to seriousness, standardized partial regression coefficients (β) were estimated using SPost (Long & Freese, 2014). Importantly, the models featured in the tables that follow met the parallel lines assumption. However, results from the Breusch-

Pagan/Cook-Weisberg test indicated the presence of heteroskedasticity. Therefore, the test statistics (i.e., z-tests) were calculated using robust standard errors. All the regression models were estimated using Stata 15.

In Table 3, the five outcome measures are regressed onto procedural injustice and seriousness for the subsample that received the breaking and entering scenario. Generally speaking, the procedural injustice condition had the anticipated effect. Those receiving unfair treatment reported that they would be less likely to call 911 in the future if in a similar situation, less willing to cooperate further with the 911 operator, and less willing to cooperate with the police once they arrived on the scene. Not surprisingly, this same group expressed lower levels of satisfaction with the treatment they received.

Interestingly, however, experiencing an unjust interaction with a 911 operator had no significant impact on participants' willingness to testify in court. This finding is consistent with prior research indicating that procedural justice judgments regarding the police are largely limited to passive forms of cooperation, such as calling the police (see Reisig, Tankebe, & Meško, 2012). Individuals receiving more serious scenarios (i.e., more things stolen from their apartment) were no more likely to cooperate, call 911 in the future, nor were they less satisfied with their treatment. In relative terms, the evidence clearly shows that the treatment participants received in their scenarios outweighs the influence of the seriousness described in the hypothetical breaking and entering scenario.

Table 3: Ordinal Logistic Regression for Breaking & Entering Subsample (n = 236)

Variables	Callback Likelihood			Cooperate with Operator			Cooperate with Police			Testify in Court			Encounter Satisfaction		
	<i>b</i>	β	<i>z</i> -test	<i>b</i>	β	<i>z</i> -test	<i>b</i>	β	<i>z</i> -test	<i>b</i>	β	<i>z</i> -test	<i>b</i>	β	<i>z</i> -test
	(s.e.)			(s.e.)			(s.e.)			(s.e.)			(s.e.)		
Procedural Injustice	-3.06	-0.64	-9.04**	-3.21	-0.66	-9.53**	-2.14	-0.51	-6.38**	-0.39	-0.11	-1.42	-6.24	-0.87	-10.01**
	(0.34)			(0.34)			(0.34)			(0.28)			(0.62)		
Seriousness	0.45	0.09	1.49	0.08	0.02	0.25	-0.01	-0.00	-0.03	-0.10	-0.03	-0.34	-0.03	-0.00	-0.10
	(0.30)			(0.30)			(0.30)			(0.28)			(0.28)		
Likelihood ratio χ^2		81.78**			91.21**			41.20**			2.08			104.47**	
McFadden's R ²		0.20			0.22			0.12			0.01			0.42	

Note. Entries are unstandardized regression coefficients (*b*), robust standard errors in parentheses, standardized regression coefficients (β), and *z*-tests. Threshold values indicating cut points in latent variables are not shown in the table.

* $p < 0.01$, ** $p < 0.001$ (two-tailed test)

In Table 4, the five outcome measures are regressed onto procedural injustice and seriousness for the subsample that received the traffic accident scenario. The procedural injustice condition generally had the anticipated effect. Again, those receiving unfair treatment reported that they would be less likely to call 911 in the future if in a similar situation, less willing to cooperate further with the 911 operator, and less willing to cooperate with the police once they arrived on the scene. Also, consistent with those in the breaking and entering subsample, this same group expressed lower levels of overall satisfaction with the treatment they received. Once again, experiencing an unjust interaction with a 911 operator had no impact on participants' willingness to testify in court. Individuals receiving more serious scenarios (i.e., more serious injuries for the bicyclist who was struck by a car) were no more likely to cooperate with police, call 911 in the future, nor were they less satisfied with their treatment. Surprisingly, individuals who experienced a more serious scenario were, however, significantly less likely to cooperate with the operator. Overall, the evidence largely shows that that the treatment participants received in their scenarios outweighs the influence of the seriousness of the harm incurred by the bicyclist involved in the hypothetical accident. These findings are consistent with the findings for those observed for the breaking and entering subsample.

Table 4: Ordinal Logistic Regression for Traffic Accident Subsample (n = 252)

Variables	Callback Likelihood			Cooperate with Operator			Cooperate with Police			Testify in Court			Encounter Satisfaction		
	<i>b</i> (s.e.)	β	<i>z</i> -test	<i>b</i> (s.e.)	β	<i>z</i> -test	<i>b</i> (s.e.)	β	<i>z</i> -test	<i>b</i> (s.e.)	β	<i>z</i> -test	<i>b</i> (s.e.)	β	<i>z</i> -test
Procedural Injustice	-1.59 (0.30)	-0.40	-5.38**	-2.00 (0.31)	-0.48	-6.45**	-1.00 (0.28)	-0.27	-3.61**	-0.38 (0.24)	-0.10	-1.60	-4.84 (0.44)	-0.80	-10.93**
Seriousness	-0.54 (0.28)	-0.14	-1.93	-0.80 (0.28)	-0.19	-2.85*	-0.51 (0.27)	-0.13	-1.89	-0.43 (0.24)	-0.12	-1.80	0.13 (0.27)	0.02	0.48
Likelihood ratio χ^2		31.21**			45.54**			16.72**			5.68			119.42**	
McFadden's R^2		0.08			0.11			0.04			0.01			0.34	

Note. Entries are unstandardized regression coefficients (*b*), robust standard errors in parentheses, standardized regression coefficients (β), and *z*-tests. Threshold values indicating cut points in latent variables are not shown in the table.

* $p < 0.01$, ** $p < 0.001$ (two-tailed test)

Discussion

Consistent with a growing body of process-based model research, this study demonstrated that procedural injustice shapes levels of cooperation and general satisfaction among study participants. Furthermore, the evidence largely indicated that that the treatment participants received in their scenarios dwarfed the influence of the seriousness of the event. This is important in the sense that, for these participants, regardless of how serious the situation that compelled them to call the police, the treatment they received was far more important in shaping how the encounter would unfold (i.e., high or low level of cooperation) and whether they would initiate similar encounters in the future. These results have implications for theory, future research, and criminal justice practice.

Most important for theory, this study has shown that the influence of procedural justice applies not only to legal authorities, but also non-sworn personnel. As shown in this study and others, procedurally-unjust actions can have deleterious effects on interaction outcomes like lack of cooperation and satisfaction. Being that 911 operators are likely the first contact individuals have with the police, it is imperative that this contact promotes a positive perception of this institution. Importantly, this study shows that the theoretical concepts proposed by procedural justice must be expanded beyond policing to include others who also shape police-public interactions. With the current research being narrowly focused on procedural justice within the contextual bounds of policing, this study has broadened the theoretical scope of procedural justice by

demonstrating that this theory applies to non-sworn personnel who play an important role in the criminal justice system.

Future research should investigate whether non-sworn professionals working in other facets of the criminal justice system similarly influence citizen cooperation with legal authorities. For example, do clerical and medical staff in correctional institutions, parking enforcement, public information officers, paramedics, and victim service providers influence whether citizens cooperate with criminal justice officials in the moment and whether they will initiate contact under similar conditions in the future? Additionally, it is important to test this across more diverse scenarios. Varying vignettes across victimization, crime severity, time sensitivity of the emergency, and other manipulations will shed light on the scope of the influence that non-sworn personnel may have. Finally, alternative methodologies, such as laboratory experiments, would be viable options to pursue further. Specific to 911 operators, audio vignettes could administer more subtle aspects of procedural injustice (e.g., intonation, raised voices, tone, and enunciation) that are less easily translated via written vignettes.

The results from this study also have important implications for practice. Notably, the results point to a need for effective training of 911 operators—training in call handling that reflects the principles of procedural justice. Training in how to properly collect information from a caller, the importance of developing trust, and remaining calm and respectful would be steps in the right direction. Such training could reduce accusations lodged against 911 operators that they are condescending, rude, and lacking in knowledge (Stafford, 2017; Technology Wire, 2012). Since the results showed that

these interactions influence a host of outcomes, it is important to address these shortcomings with more training geared towards 911 operators practicing procedural justice when handling calls. Moving forward, more research should be conducted on the ways the tenants of procedural justice can be implemented into 911 operator training curricula.

Further speaking to the implications of this research on practice, the finding that those participants who received the procedurally-unjust response from the operator were significantly less likely to cooperate with the police once on scene is important to note. This demonstrates that the actions of the operator go well beyond the call itself. Instead, the repercussions of that interaction, good or bad, bleed into the interactions the citizen has with other criminal justice authorities over the course of an investigation. This exemplifies the importance of 911 operator training, as a means of making an officer's job relatively easier, by leaving citizens more cooperative and less resistant.

This study has limitations that must be noted. One of the limitations is that there can be a difference between how people claim they would behave (or behavioral intentions) and how they actually would behave in a given situation. However, research shows that participant responses to vignettes and real-life situations are more similar than not when hypothetical situations are both realistic and relevant (Hughes, 1998). Recall that a large majority of participants reported that the scenarios used in the study were clear and realistic. A second limitation is the inability to generalize the findings to broader populations. Until future researchers are able to replicate these findings using

samples more representative of broader populations, these findings should be considered tentative.

Overall, this study found general support for the process-based model. Further, this study has extended the reach of the process-based model by demonstrating the salience of procedural justice when individuals call on the police and interact with non-sworn criminal justice personnel. The finding that procedural injustice negatively affects a host of important outcomes underscores the need for training in procedurally-just handling of calls by 911 operators and a broadening of the scope of how criminal justice encounters are conceived in theory and practice. Additionally, the fact that procedural justice overshadowed the effects of the seriousness of the event shows that procedural justice is important in all interactions regardless of the situation.

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APPENDIX A
HYPOTHETICAL SCENARIOS

Vignette 1.1: Breaking and Entering/Procedural Justice, Least Serious Scenario

You arrive home to find that your apartment has been broken into. You pull out your phone and dial 9-1-1. "Emergency Services. What's the emergency?" you hear the operator say. You frantically respond, "Yes, I just got home and my apartment has been broken into!" The operator responds, "Okay, please stay calm. What's the address?" "291 Roosevelt Street #139," you say. The operator asks, "Do you know whether anything way taken?" "Well," you say, "nothing appears to be missing." You continue, "what if somebody is still here, maybe hiding in the bathroom and maybe they have a gun or some other kind of..." After you complete your thought you hear the operator say, "Okay, for your safety, please wait for the police outside. I will stay on the line until they arrive."

Vignette 1.2: Breaking and Entering/Procedural Injustice, Least Serious Scenario

You arrive home to find that your apartment has been broken into. You pull out your phone and dial 9-1-1. "Emergency Services. What's the emergency?" you hear the operator say. You frantically respond, "Yes, I just got home and my apartment has been broken into!" The operator responds, "Okay, please stay calm. What's the address?" "291 Roosevelt Street #139," you say. The operator asks, "Do you know whether anything way taken?" "Well," you say, "nothing appears to be missing." You continue, "what if somebody is still here, maybe hiding in the bathroom and maybe they have a gun or some other kind of..." But before you can finish your thought you hear the operator's voice say in a loud and firm tone, "Knock it off! Calm down! If you're going to act like a baby then wait outside for the police."

Vignette 1.3: Breaking and Entering/Procedural Justice, Most Serious Scenario

You arrive home to find that your apartment has been broken into. You pull out your phone and dial 9-1-1. "Emergency Services. What's the emergency?" you hear the operator say. You frantically respond, "Yes, I just got home and my apartment has been broken into!" The operator responds, "Okay, please stay calm. What's the address?" "291 Roosevelt Street #139," you say. The operator asks, "Do you know whether anything way taken?" "Well," you say, "looks like the flat screen is gone, my bike is gone, and so is my laptop. I'm guessing probably more is missing." You continue, "what if somebody is still here, maybe hiding in the bathroom and maybe they have a gun or some other kind of..." After you complete your thought you hear the operator say, "Okay, for your safety, please wait for the police outside. I will stay on the line until they arrive."

Vignette 1.4: Breaking and Entering/Procedural Injustice, Most Serious Scenario

You arrive home to find that your apartment has been broken into. You pull out your phone and dial 9-1-1. “Emergency Services. What’s the emergency?” you hear the operator say. You frantically respond, “Yes, I just got home and my apartment has been broken into!” The operator responds, “Okay, please stay calm. What’s the address?” “291 Roosevelt Street #139,” you say. The operator asks, “Do you know whether anything was taken?” “Well,” you say, “looks like the flat screen is gone, my bike is gone, and so is my laptop. I’m guessing probably more is missing.” You continue, “what if somebody is still here, maybe hiding in the bathroom and maybe they have a gun or some other kind of...” But before you can finish your thought you hear the operator’s voice say in a loud and firm tone, “Knock it off! Calm down! If you’re going to act like a baby then wait outside for the police.”

Vignette 2.1: Traffic Accident/Procedural Justice, Least Serious Scenario

You are walking to class when you see a car run a red light and hit a bicyclist riding through a crosswalk. You pull out your phone and dial 9-1-1. “Emergency Services. What’s the emergency?” you hear the operator say. You frantically respond, “Yes, I just witnessed someone on a bike get hit by a car!” The operator responds, “Okay, please stay calm. What’s the address?” “We are on the corner of Central and Van Buren,” you say. The operator asks, “Okay, is the bicyclist injured?” “Well,” you say, “they walked over and sat down on the sidewalk, so it doesn’t seem too serious.” You continue, “they seem a little disoriented so maybe they may have a concussion...” After you finish your thought you hear the operator’s voice say, “Okay, I appreciate your detailed description. Thank you. Please wait for the police and paramedics to get there. I will stay on the line until they arrive.”

Vignette 2.2: Traffic Accident/Procedural Injustice, Least Serious Scenario

You are walking to class when you see a car run a red light and hit a bicyclist riding through a crosswalk. You pull out your phone and dial 9-1-1. “Emergency Services. What’s the emergency?” you hear the operator say. You frantically respond, “Yes, I just witnessed someone on a bike get hit by a car!” The operator responds, “Okay, please stay calm. What’s the address?” “We are on the corner of Central and Van Buren,” you say. The operator asks, “Okay, is the bicyclist injured?” “Well,” you say, “they walked over and sat down on the sidewalk, so it doesn’t seem too serious.” You continue, “they seem a little disoriented so maybe they may have a concussion...” But before you can finish your thought you hear the operator’s voice say in a loud and firm tone, “Excuse me! Are you a medical doctor? If not, save the arm chair diagnosis. It’s not helpful!”

Vignette 2.3: Traffic Accident/Procedural Justice, Most Serious Scenario

You are walking to class when you see a car run a red light and hit a bicyclist riding through a crosswalk. You pull out your phone and dial 9-1-1. “Emergency Services. What’s the emergency?” you hear the operator say. You frantically respond, “Yes, I just witnessed someone on a bike get hit by a car!” The operator responds, “Okay, please stay calm. What’s the address?” “We are on the corner of Central and Van Buren,” you say. The operator asks, “Okay, is the bicyclist injured?” “Well,” you say, “their leg is really bloody and mangled. They’re in serious pain!” You continue, “they seem a little disoriented so maybe they may have a concussion...” After you finish your thought you hear the operator’s voice say, “Okay, I appreciate your detailed description. Thank you. Please wait for the police and paramedics to get there. I will stay on the line until they arrive.”

Vignette 2.4: Traffic Accident/Procedural Injustice, Most Serious Scenario

You are walking to class when you see a car run a red light and hit a bicyclist riding through a crosswalk. You pull out your phone and dial 9-1-1. “Emergency Services. What’s the emergency?” you hear the operator say. You frantically respond, “Yes, I just witnessed someone on a bike get hit by a car!” The operator responds, “Okay, please stay calm. What’s the address?” “We are on the corner of Central and Van Buren,” you say. The operator asks, “Okay, is the bicyclist injured?” “Well,” you say, “their leg is really bloody and mangled. They’re in serious pain!” You continue, “they seem a little disoriented so maybe they may have a concussion...” But before you can finish your thought you hear the operator’s voice say in a loud and firm tone, “Excuse me! Are you a medical doctor? If not, save the arm chair diagnosis. It’s not helpful!”

APPENDIX B
BALANCE TEST RESULTS

Table B1 One-way analysis of variance (ANOVA) as balance test for randomization

	Breaking and Entering Scenario	Traffic Accident Scenario
	<i>F</i> -test	<i>F</i> -test
Male (1 = yes; 0 = no)	0.607	0.623
Age (in years)	0.503	0.606
Race		
White (1 = yes; 0 = no)	1.187	0.701
Minority (1 = yes; 0 = no)	1.434	0.654
Living Situation		
Dorm (1 = yes; 0 = no)	0.682	0.699
Apartment (1 = yes; 0 = no)	0.743	0.717
House (1 = yes; 0 = no)	0.669	0.623
Prior Police Contact (1 = yes; 2 = no)	0.844	0.188
Prior Victimization (1 = yes; 2 = no)	0.237	1.036

Note: This table provides *F*-tests from one-way ANOVA models testing group differences.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$